

NOMINATION OF THE ANGLE VALE LAMINATED TIMBER ARCH BRIDGE
FOR AN HISTORIC ENGINEERING MARKER

NAME OF WORK

Laminated Timber Arch Rib Bridge

LOCATION

Heaslip Road, Angle Vale, South Australia.
Bridge Crosses the River Gawler.
Bridge located between Sections 89 & 90, Hundred of Mudla Wirra, County of
Gawler, and Sections 7588 & 7589, Hundred of Munno Para, County of Adelaide,
South Australia.
A.M.G. Coords: 5TG841652.

OWNERS

Corporation of the City of Munno Para and District Council of Light.

PROPOSED WORDING ON THE MARKER

ANGLE VALE BRIDGE

This laminated timber arch rib bridge was constructed in 1876 by Messrs Hack and Parker for the Central Roads Board. It provided a direct and reliable crossing for road traffic carrying wheat and firewood to Adelaide. Approximately twenty such structures were built in South Australia after 1856 because they could survive most floods with their large clear opening, were economically and quickly constructed and used readily available materials.

(68 words)

JUSTIFICATION

Tenders for the bridge were called on Wednesday 2 February 1876 and closed on the 21st. The finished bridge was opened on Wednesday 22 November 1876.

The designer was C.F.G. Ashwin Esq, C.E., Superintending Surveyor of the Northern District of the Central Road Board. J.C. Brodie was the Clerk of Works and Messrs Hack and Parker the contractors.

The historic engineering significance of the bridge is its solution to the problems of firstly obtaining long spans before the availability of iron and secondly improving the short service life of laminated timber bridges due to rotting. In South Australia, laminated timber arch bridges were built for around one quarter of the cost of iron structures, and finished in six months as opposed to two years for iron which had to be fabricated in England and shipped to South Australia. However by the 1870's the cost differential between iron and the local timber had shrunk, and fabricating shops had been established locally.

There are no identical structures known to exist either in Australia or the world. The only other similar structure in Australia is a laminated truss arch at Currency Creek, near Goolwa in South Australia. A few other horizontally laminated timber arch bridges are known to exist in Vermont, U.S.A.

The essential distinctive and unique feature of the bridge is the attention given to detail to provide a structure which is durable, from a material which is not intrinsically so. This was achieved by changing the direction of the laminations from horizontal to vertical thus relocating all the joints from the exposed position on the side of the ribs to the top where they were covered by sheet iron.

The contribution of the bridge is to provide a reliable, long lived, low cost and flood free river crossing for uninterrupted communication and transport of agricultural produce.

DOCUMENTATION

The following references describe the Angle Vale Bridge:-

- (1) South Australian Register, 23 November, 1876, report of opening.
- (2) South Australian Advertiser, 23 November, 1876, report of opening.
- (3) Thomas, A.I., "Laminated Timber Arch Bridges: An Interesting Type of Road Structure used in the Early Days of South Australia", Highway, Vol 14, No 2, April 1976, pages 10-12.
- (4) Department for the Environment, South Australia, Australian Engineering Heritage Record, survey no S.A.5. 1979.
- (5) "Historic Bridge No 6, Angle Vale Bridge", Highway, Vol 18, No 5, October 1980.
- (6) O'Connor, C., "Register of Australian Historic Bridges", The Institution of Engineers, Australia and The Australian Heritage Commission, Feb 1983, pages 8 and 52.
- (7) O'Connor, C., "Spanning Two Centuries: Historic Bridges of Australia", University of Queensland Press, 1985, pages 142-5.
- (8) Stacy, W.S., "A History of the Use of Timber in South Australian Road Bridge Building", Journal of the Institute of Wood Science, London, Vol 10, No 4, December 1985, pages 160-9.
- (9) Maunsell & Partners Pty Ltd, "Angle Vale Bridge Restoration and Environmental Improvement being undertaken for the City of Munno Para", Maunsell & Partners Pty Ltd, 1988.
- (10) Hawes, J., Legoe, D., Stacy, W. & Young, D., "The Conservation of the Angle Vale Laminated Timber Arch Bridge", paper submitted to the Fourth National Conference on Engineering Heritage, Institution of Engineers, Australia.

OWNERS' ATTITUDE

One owner of the bridge, C.C. Munno Para, has given permission, currently being confirmed in writing, to locate a marker on the bridge and has requested that it be unveiled at the ceremony commemorating the reopening of the bridge on Sunday, 20 November, 1988. Permission from the other owner, D.C. Light, is currently being sought.

A plaque naming the designer, Clerk of Works and the contractors and another detailing the conservation work will be unveiled at the same ceremony. This plaque is being prepared by the Department of Environment and Planning.